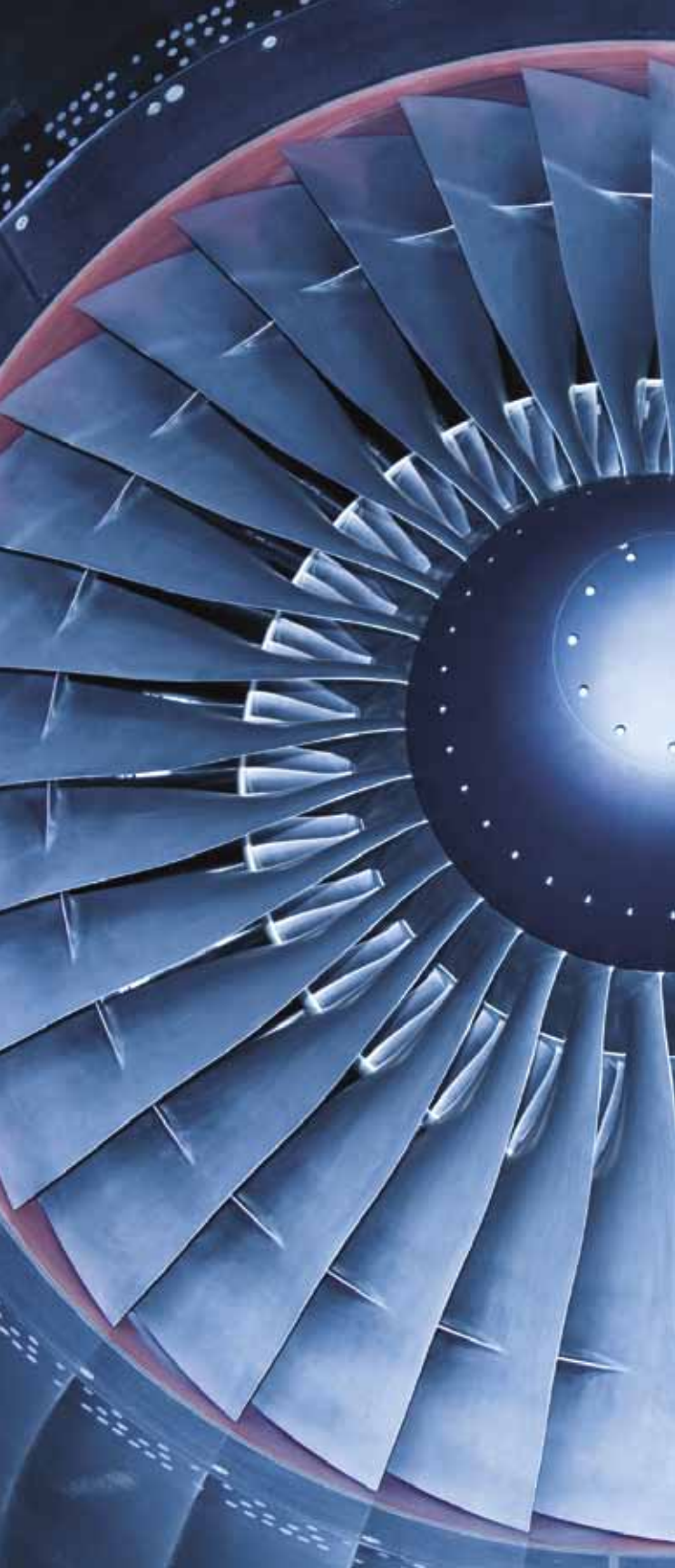


BUSINESS IN MARYLAND

AEROSPACE & DEFENSE



PROFILE



Maryland's aerospace and defense industry includes 12 major military installations, 16 of America's top 25 aerospace companies and 70 of the top 100 defense contractors. The state is a thriving location for space exploration, satellite technology and research, design and manufacturing of UAVs and robotics. The industry includes Department of Defense related activities such as biodefense, cyber security, avionics, informatics and ordnance and weapons testing. In 2009, Maryland's 2,600 aerospace and defense businesses were awarded \$3.5 billion in federal contracts and generated \$21.2 billion in Gross Domestic Product.



WORKFORCE

1st in concentration
of doctoral scientists
and engineers

TOP 10 AEROSPACE & DEFENSE EMPLOYERS

Northrop Grumman	11,500
Lockheed Martin	9,250
SAIC	4,500
JHU Applied Physics Laboratory	4,400
CSC	3,960
BAE Systems	2,900
Booz Allen Hamilton	2,390
Bechtel	2,200
IBM	2,100
Westat	1,900

Excludes federal and military facilities

AEROSPACE & DEFENSE EMPLOYMENT

MARYLAND
5.7 PER 100

UNITED STATES
3.9 PER 100

Computer scientists	91,600
Engineers	35,240
Physical scientists	1,720
Technicians	17,670
TOTAL	146,230

Third highest among states

MARYLAND'S WORKFORCE PIPELINE

Maryland's workforce pipeline is fueled by a concentration of workers in computer, engineering and physical science related occupations. Among states Maryland is:

- 1st in computer specialists and astronomers
- 2nd in network systems and data communications analysts
- 3rd in physicists and atmospheric and space scientists
- 4th in aerospace engineers
- 5th in computer software engineers and systems software



TRENDS IN AEROSPACE

Unmanned Aerial Vehicles (UAVs) are a dynamic growth sector of the world aerospace industry and **AAI Textron Systems**, **Proxy Aviation** and **American Dynamics Flight Systems** are just a few of Maryland's leaders in UAV research, development, testing and evaluation. The Teal Group's 2010 market analysis report predicts the worldwide UAV market will more than double, reaching \$80 billion in the next ten years.



AAI's Shadow Tactical Unmanned Aircraft System (TUAS) was named as one of the "Big 25" technologies of 2009 by C4ISR Journal. In service with the U.S. Army, Army National Guard, Army Special Forces and Marine Corps the Shadow aircraft have accumulated more than 435,000 operational flight hours.

MARYLAND MILITARY INSTALLATIONS

- Aberdeen Proving Ground
- Adelphi Laboratory Center
- Army Corps of Engineers, Baltimore District
- Carderock Division, Naval Surface Warfare Center
- Coast Guard Yard, Curtis Bay
- Fort Detrick
- Fort George G. Meade
- Joint Base Andrews Naval Air Facility Washington
- National Naval Medical Center at Bethesda
- Naval Air Station Patuxent River
- Naval Support Facility Indian Head
- United States Naval Academy

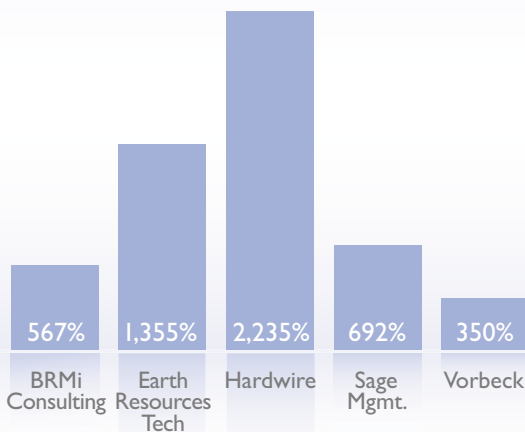
TOP MARYLAND DEFENSE IT CONTRACTORS

- Boeing
- Booz Allen Hamilton
- CACI International
- CSC
- General Dynamics
- Honeywell International
- IBM
- L-3 Communications
- Lockheed Martin
- MITRE
- Northrop Grumman
- SAIC

FASTEST GROWING

Established industry leaders are joined by some of the nation's fastest growing startups.

INC. 500'S FASTEST GROWING MD COMPANIES



Maryland Companies – 3 Year Revenue Growth 2005-2008



LOCATION

Access to 400
research centers and 50
federal agencies



RESEARCH

Maryland has more than 50 federal research agencies and ranks second nationally in research and development investments by the federal government, with \$12.5 billion in annual funding.



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LEADING R&D FACILITIES

Ft. Meade, Aberdeen Proving Ground and Ft. Detrick create an unparalleled landscape for defense related research and development. The U.S. Marines and the U.S. Navy have formally established cybersecurity centers at Fort Meade with the addition of two new operational commands; the **U.S. Marine Forces' Cyberspace Command** and the **U.S. Navy's Fleet Cyber Command**. Agencies shaping the backbone of Maryland's elite cybersecurity network include:

- Defense Information Systems Agency
- Intelligence Advanced Research Projects Activity
- National Institute of Standards and Technology
- National Security Agency

ADVANCING SPACE EXPLORATION

Research and development in Maryland based organizations revolutionize aerospace and space exploration offering mankind an up-close look at mysteries of our planet with help from the **Hubble Space Telescope**, the **MESSENGER** satellite and the **James Webb Space Telescope**.

- JHU Applied Physics Lab
- U.S. Army Research Laboratory
- Naval Air Warfare Center Aircraft Division
- Naval Air Systems Command
- NASA Goddard Space Flight Center
- Mid-Atlantic Regional Spaceport



EDUCATION

Best public school
system in the nation
2nd straight year

EDUCATION

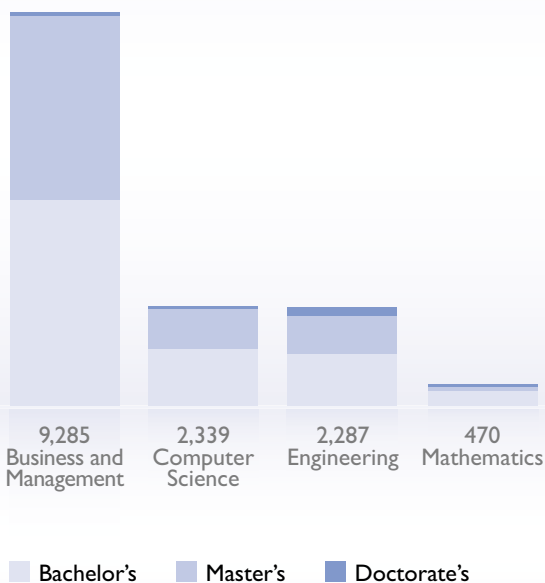
Maryland has world-renowned colleges and universities with outstanding computer science and engineering programs. Nationally ranked STEM and competitive research programs include the University System of Maryland, which attracts more than \$1 billion annually in external research and development support and Johns Hopkins University, the nation's leading University in volume of research.

- **University of Maryland College Park** is ranked among the top ten universities in graduate and undergraduate aerospace engineering and produces the largest number of STEM graduates in the state.
- **University of Maryland Baltimore County** has the second highest percentage of graduates in STEM fields of any university in the state and is home to the **Center for Information Security and Assurance**.

- **University of Maryland University College** is one of the world's largest public universities. Specialized training programs include Homeland Security and Information Assurance, Information Technology, Project Management and Software Engineering.
- **United States Naval Academy** ranks second in the nation among top public liberal arts colleges, fifth in undergraduate engineering (among schools without PhD programs); its programs in aerospace and electronics/communications engineering rank in top ten.
- **Anne Arundel Community College** the first 2-year college to develop a cybersecurity curriculum, the Information Systems Security program offers an AA degree, certificate and courses to students for entry-level positions in cybersecurity.



DEGREES AWARDED BY MD COLLEGES & UNIVERSITIES



(2009)

DID YOU KNOW?



The **United States Naval Test Pilot School** located at Patuxent River is the only test pilot school in the U.S. military that offers academic courses on helicopters



MESSENGER spacecraft was named by *Time* magazine as one of the best inventions of 2009



NASA generates nearly \$1.5 billion each year and employs 10,000



Maryland born scientist **Roger L. Easton** is the principal inventor and designer of the Global Positioning System, receiving the National Medal of Technology for his achievements



Maryland born **Michael Douglas Griffin**, American physicist and aerospace engineer was named one of the 100 most influential people in *Time* magazine, 2007



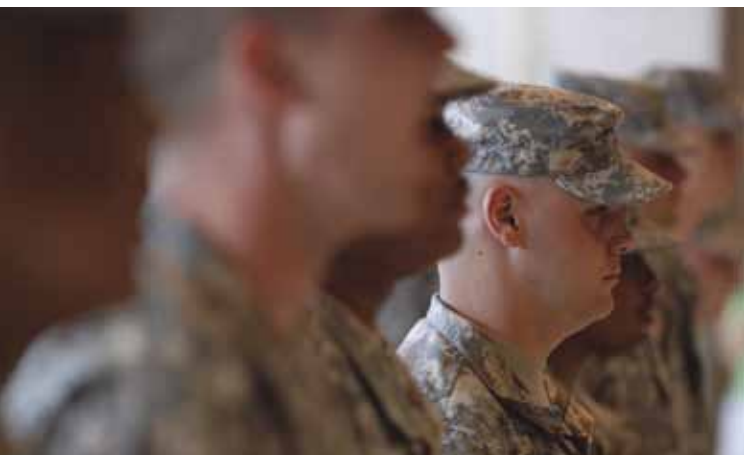
90,000 Civilian and military employees in Maryland contribute **\$18 billion** annually to the state's economy



Non-defense federal procurement of \$12.3 billion in 2008 supported more than 200,000 private sector jobs in Maryland



Morgan State University ranks 3rd in the number of engineering bachelor's degrees awarded to African Americans





INFRASTRUCTURE

BWI

Best mid-size airport
in the world



INFRASTRUCTURE

Centrally located along the U.S. east coast, offering proximity to New York, Philadelphia and Washington, Maryland's robust transportation infrastructure provides immediate access to major distribution and travel routes.

- Three international airports within an hour's drive
 - Baltimore-Washington International Thurgood Marshall Airport
 - Dulles International Airport
 - Reagan National Airport
- Two Class I freight rail carriers, CSX and Norfolk Southern, and five short lines
- A deep-water, inland port that handles nearly 50 million tons of cargo annually
- Six interstate highways that link the state to every major U.S. market
- Overnight trucking access to one third of the U.S. population

RESOURCES

Businesses benefit from numerous statewide technology councils, alliances and more than two dozen incubators, including the nation's first homeland and national security focused accelerator, the **Chesapeake Innovation Center**.

The network of support promotes advanced technology collaboration, innovation and commercialization via shared resources, technology transfer, funding options, advocacy initiatives and opportunities for continued education and training.

SELECT TECHNOLOGY ORGANIZATIONS AND INCUBATORS

- Chesapeake Regional Tech Council
- Greater Baltimore Technology Council
- Maryland Space Business Roundtable
- Maryland Technology Development Corporation
- NeoTech Incubator
- Northeastern Maryland Technology Council
- Patuxent Partnership
- Technology Council of Maryland

MILITARY ALLIANCES

Military installations and federal facilities are supported by alliances that facilitate and support Federal, State and local legislative process and business development and contracting opportunities.

- Andrews Business and Community Alliance
- Army Alliance
- Fort Detrick Alliance
- Fort Meade Alliance
- Indian Head Defense Alliance
- Maritime Technology Alliance
- Southern Maryland Navy Alliance



INCENTIVES

Maryland supports business ventures with a wide array of incentive based solutions, including workforce training grants, loans and twenty-eight Enterprise Zones that provide income and real property tax credits in return for job creation and investments. Select funding, technology transfer and technical assistance programs include:

Maryland Venture Fund – A state-funded seed and early-stage equity fund that makes direct investments in technology and indirect investments in venture capital funds. Approximately 60 percent of the Fund is invested in technology companies in software, communications, and IT security.

- **Challenge Investment Program** – provides financing for seed-stage companies to cover a portion of the initial costs associated with bringing new products to market. Maximum investment of \$150,000.
 - Less than 25 employees, annual sales of less than \$1 million
 - Minimum 1:1 co-investor match required
 - Located in Maryland and remain in the state for 3 years
- **Enterprise Investment Fund Program** – direct equity investments in emerging technology companies from \$150,000 to \$500,000.
 - Principal place of business in Maryland for 5 years
 - Minimum 3:1 co-investor match required



Research and Development Tax Credit – Businesses with qualified research and development expenses in Maryland are entitled to a tax credit if eligible and certified by the Department of Business and Economic Development.

- **Basic R&D Tax Credit** – 3 percent of eligible R&D expenses in excess of the firm's average R&D expenses over the last four years. If total credit claimed exceeds \$3 million, the tax credit is prorated.
- **Growth R&D Tax Credit** – 10 percent of eligible R&D expenses that exceeds the average R&D expenses over the last four years. If total credit claimed exceeds \$3 million, the Growth R&D tax credit is prorated.

Maryland's Technology Development Corporation is a Maryland Proof of Concept Center that moves innovations and capabilities of academic and federal labs into the state's economy by facilitating the transfer of technology between the private sector and the labs with vital seed funding, specialized technical assistance, and entrepreneurial support programs. For additional information visit www.marylandtedco.org.

MARYLAND DEPARTMENT OF BUSINESS & ECONOMIC DEVELOPMENT

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